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WAR FOOD ADMINISTRATION  
Office of Marketing Services  
Washington 25, D. C.

PROPOSED AMENDMENTS TO THE RULES AND REGULATIONS  
UNDER THE FEDERAL SEED ACT

Distributed for purposes of discussion only.

201.2 (h) Change the first sentence to read as follows:

"Agricultural seeds.—The term 'agricultural seeds' means the following grass, forage, and field crop seeds:"

List the agricultural seeds in 201.2 (h) and (1) and 201.2 (h) (2) in their proper alphabetical order and insert in addition in their proper alphabetical order the following: "Bluegrass, bulbous, Poa bulbosa L."; "Bluegrass, Nevada, Poa nevadensis Vasey"; "Bluegrass, Texas, Poa arachnifera Torr."; "Bluestem, big, Andropogon furcatus Muhl."; "Bluestem, little, Andropogon scoparius Michx."; "Bluestem, sand, Andropogon hallii Hack."; "Brome, mountain, Bromus marginatus Ness"; "Clover, lappa, Trifolium lappaceum L."; "Clover, \_\_\_\_\_, Trifolium procumbens L."; "Crotalaria, lance, Crotalaria lanceolata E. Mey"; "Crotalaria, striata Crotalaria striata, DC."; "Crotalaria, sunn, Crotalaria juncea L."; "Dropseed, sand, Sporobolus cryptandrus (Torr.) A. Gray"; "Grama, blue, Bouteloua gracilis (H.B.H.) Lag."; "Grama, side-oats, Bouteloua curtipendula (Michx.) Torr."; "Grass, buffalo, Buchloe dactyloides (Nutt.) Engl."; "Grass, giant panic, Panicum antidotale Retz."; "Grass, Harding, Phalaris tuberosa var. stenoptera (Hack) Hitchc."; "Grass, Indian, Sorghastrum nutans (L.) Nash."; "Grass, Johnson, Sorghum halepense (L.) Pers."; "Grass, switch, Panicum virgatum L."; "Grass, Vasey, Paspalum urvillei Steud."; "Lespedeza, Siberian, Lespedeza hedysaroides (Pallas) Ricker"; "Lovegrass, weeping,

Eragrostis curvula (Schrud.) Ness"; "Pea, rough, Lathyrus hirsutus L."; "Peanut, Arachis hypogea L."; "Ricegrass, Indian, Oryzopsis hymenoides (Roem. and Schult.) Ricker"; "Sesbania, Sesbania exaltata (Raf.) Torr."; "Smilo, Oryzopsis miliacea (L.) Benth. and Hoak."; "Trefoil, big, Lotus uliginosus Schkuhr."; "Trefoil, birdsfoot, Lotus corniculatus L."; "Wild-rye, Canada, Elymus canadensis L."

201.2 (i) Insert in their proper alphabetical order the following: "Bean, asparagus, Vigna sesquipedalis (L.) Fruwirth"; "Bean, runner, Phaseolus coccineus L."; "Cardoon, Cynara cardunculus L."; and "Soybean, Soja max (L.) Piper."

201.2 Add after 201.2 (y) the following: "(z) Processing. -- For the purpose of Sec. 203 (b) (2) (B) of the act the term 'processing' means cleaning, scarifying, or blending to obtain uniform quality, and other operations which would change the purity or germination of the seed and therefore require retesting to determine the quality of the seed, but does not include operations such as packaging, labeling, blending together of uniform lots of the same kind or variety without cleaning, or the preparation of a mixture without cleaning, any of which would not require retesting to determine the quality of the seed."

201.26 Add the following: "The representation of kind and variety shall be confined to the recognized name of the kind and variety. It shall not have affixed thereto names or terms that create a misleading impression as to the history or quality of the seed."

201.31 Change "Beans (except lima) — 80" to read "Beans (except lima) — 75." Strike out the numeral "25" after the words "Cress, water" and insert in lieu thereof the numeral "35." Add in proper alphabetical order; "Bean, asparagus — 75," "Bean, runner — 75," "Cardoon — 60," "Soybean — 75."

201.39 Change subsections (d) and (e) to read as follows: "(d) As the seed or screenings are sampled each portion shall be examined and if there appears to be a lack of uniformity, the portions shall not be combined but shall be retained as separate samples to determine such lack of uniformity as may exist. (e) When the portions appear to be uniform, they shall be combined to form a composite sample."

201.43 Change to read as follows: "Size of sample.—The following are minimum weights of samples of agricultural seed and screenings to be submitted for analysis, test, or examination:

(a) Two ounces of grass seed not otherwise mentioned, white or alsike clover, or seeds not larger than these.

(b) Five ounces of red or crimson clover, alfalfa, lespedeza, ryegrass, bromegrass, millet, flax, rape, or seeds of similar size.

(c) One pound of Sudan grass, sorghum, proso, hemp, or seeds of similar size.

(d) Two pounds of cereals, vetch, or seeds of similar or larger size.

(e) Two quarts of screenings."

201.46 Change to read: "Weight of working sample.—For the detailed purity analysis the working sample shall be at least the weight set forth in table 1."

## Weights for working samples

Name of seed	Minimum weight for analysis	Minimum weight for examination	Approximate number of seeds per gram
Alfalfa - <u>Medicago sativa</u>	5	50	500
Bahia grass - <u>Paspalum notatum</u>	10	50	366
Barley - <u>Hordeum vulgare</u>	100	500	30
Bean, Adzuki - <u>Phaseolus angularis</u>	500	500	11
Bean, field - <u>Phaseolus vulgaris</u>	500	500	4
Bean, Mung - <u>Phaseolus aureus</u>	100	500	24
Bean, Velvet - <u>Stizolobium utile</u>	500	500	2
Beet, field (Mangel) - <u>Beta vulgaris</u>	50	300	54
Bentgrass:			
Astoria - <u>Agrostis tenuis</u> var.	1	25	12,048
Colonial - <u>Agrostis tenuis</u>	1	25	19,231
Creeping - <u>Agrostis palustris</u>	1	25	17,196
Highland - <u>Agrostis tenuis</u> var.	1	25	20,000
Velvet - <u>Agrostis canina</u>	1	25	23,810
Bermuda grass - <u>Cynodon dactylon</u>	1	25	3,940
Bluegrass:			
Annual - <u>Poa annua</u>	1	25	2,636
Bulbous - <u>Poa bulbosa</u>	2	50	1,020
Canada - <u>Poa compressa</u>	1	25	5,500
Kentucky - <u>Poa pratensis</u>	1	25	4,800
Nevada - <u>Poa nevadensis</u>	1	25	2,304
Rough - <u>Poa trivialis</u>	1	25	5,600
Texas - <u>Poa arachnifera</u>	1	25	2,500
Wood - <u>Poa memorialis</u>	1	25	7,097
Bluestem:			
Big - <u>Andropogon furcatus</u> 1/	10	50	302-369
Little - <u>Andropogon scoparius</u> 1/	5	50	560
Sand - <u>Andropogon hallii</u> 1/	10	50	233
Brome:			
Mountain - <u>Bromus marginatus</u>	25	150	141
Smooth - <u>Bromus inermis</u>	5	50	300
Broomcorn - <u>Sorghum vulgare technicum</u>	50	300	60
Buckwheat - <u>Fagopyrum vulgare</u>	50	300	45
Buffalo grass - <u>Buchloe dactyloides</u> 3/			
(Burs:)	25	150	200
(Caryopses)	2	50	738
Canary grass, Reed - <u>Phalaris arundinacea</u>	2	50	1,200
Carpet grass - <u>Axonopus compressus</u>	1	25	2,475
Chickpea - <u>Cicer arietinum</u>	500	500	2
Clovers:			
Alsike - <u>Trifolium hybridum</u>	2	50	1,500
Alyce - <u>Alysicarpus vaginalis</u>	5	50	664
Berseem - <u>Trifolium alexandrinum</u>	5	50	456
Bur - <u>Medicago arabica</u> (in bur)	50	300	49
- <u>Trifolium procumbens</u>	1	25	5,434

Table 1

Name of seed	Weights for working samples		
	:Minimum	:Minimum	:Approximate
	:weight	:weight for	:number of
	:for	:noxious-	:seeds per
	:purity	:weed seed	:gram
	:analysis:	examination:	
	Grams	Grams	Number
Clovers - continued			
Bur - <u>Medicago arabica</u> (out of bur)	10	50	
Bur - <u>Medicago hispida</u> (in bur)	50	300	
Bur - <u>Medicago hispida</u> (out of bur)	10	50	303
Cluster - <u>Trifolium glomeratum</u>	1	25	2,924
Crimson - <u>Trifolium incarnatum</u>	10	50	330
Ladino - <u>Trifolium repens</u>	2	50	1,937
Lappa - <u>Trifolium lappaceum</u>	2	50	1,500
Persian - <u>Trifolium resupinatum</u>	2	50	1,416
Red - <u>Trifolium pratense</u>	5	50	600
Sour - <u>Melilotus indica</u>	5	50	662
Strawberry - <u>Trifolium fragiferum</u>	5	50	635
Subterranean - <u>Trifolium subterraneum</u>	25	150	119
Suckling - <u>Trifolium dubium</u>	2	50	1,948
Sweet:			
White - <u>Melilotus alba</u>	5	50	570
Yellow - <u>Melilotus officinalis</u>	5	50	570
White - <u>Trifolium repens</u>	2	50	1,500
Corn:			
Field - <u>Zea mays</u>	500	500	3
Pop - <u>Zea mays everta</u>	500	500	
Cotton - <u>Gossypium</u> spp.	500	500	8
Cowpea - <u>Vigna sinensis</u>	500	500	8
Crested dogtail - <u>Cynosurus cristatus</u>	2	50	1,900
Crotalaria - <u>Crotalaria spectabilis</u>	25	150	80
	<u>Crotalaria intermedia</u>	10	50
	<u>Crotalaria juncea</u>	100	500
	<u>Crotalaria lanceolata</u>	10	50
	<u>Crotalaria striata</u>	10	50
Dallis grass - <u>Paspalum dilatatum</u>	2	50	485
Fescue:			
Hair - <u>Festuca capillata</u>	1	25	3,200
Meadow - <u>Festuca elatior</u> & var.			
	<u>arundinacea</u>	5	50
Other fescues - (fine leaved) <u>Festuca</u> spp.	2	50	1,200
Flax - <u>Linum usitatissimum</u>	10	50	178
Giant panic grass - <u>Panicum antidotale</u>	2	50	1,448
Gramma, blue - <u>Bouteloua gracilis</u>	1/2	50	1,977
Gramma, side-oats - <u>Bouteloua curtipendula</u>	2/		
	Other than caryopsis	5	50
	caryopsis	2	50

Name of seed	Weights for working samples		
	:Minimum	:Minimum	:Approximate
	:weight	:weight for	:number of
	:for	:noxious-	:seeds per
	:purity	:weed seed	:gram
	:analysis:	:examination:	
	Grams	Grams	Number
Guinea grass - <u>Panicum maximum</u>	5	50	2,206
Harding grass - <u>Phalaris tuberosa</u> var. <u>stenoptera</u>	5	50	750
Hemp - <u>Cannabis sativa</u>	50	300	46
Indian grass - <u>Sorghastrum nutans</u> 1/	10	50	364
Johnson grass - <u>Sorghum halepense</u>	10	50	290
Kudzu - <u>Pueraria thunbergiana</u>	25	150	81
Lespedeza:			
Chinese - <u>Lespedeza sericea</u>	5	50	820
Common and Kobe - <u>Lespedeza striata</u>	5	50	750
Korean - <u>Lespedeza stipulacea</u>	5	50	525
Siberian - <u>Lespedeza hedysaroides</u>	5	50	820
Lovegrass, weeping - <u>Eragrostis curvula</u>	1	25	3,282
Lupine:			
White - <u>Lupinus albus</u>	500	500	7
Blue - <u>Lupinus angustifolius</u>	500	500	7
Yellow - <u>Lupinus luteus</u>	500	500	9
Meadow foxtail - <u>Aloperurus pratensis</u>	2	50	1,200
Medick, black - <u>Medicago lupulina</u>	5	50	586
Millet:			
Browntop - <u>Panicum fasciculatum</u>	10	50	303
Foxtail - Such as common, German, Hungarian, Siberian - <u>Setaria italica</u>	5	50	470
Japanese - <u>Echinochloa crusgalli</u> <u>frumentacea</u>	10	50	320
Pearl - <u>Pennisetum glaucum</u>	25	150	194
Proso - <u>Panicum miliaceum</u>	25	150	180
Molasses grass - <u>Melinis minutiflora</u>	1	25	15,000
Napier grass - <u>Pennisetum purpureum</u>			
Oats - <u>Avena</u> spp.	100	500	28
Oatgrass, tall meadow - <u>Arrhenatherum</u> <u>elatus</u>	10	50	330
Orchard grass - <u>Dactylis glomerata</u>	2	50	1,441
Peanut - <u>Arachis hypogaea</u>	500	500	1-3
Peas, field - <u>Pisum sativum arvense</u>	500	500	4
Rape:			
Annual - <u>Brassica napus</u> var.	10	50	346
Bird - <u>Brassica campestris</u>	10	50	425
Turnip - <u>Brassica rapa</u> var.	10	50	536
Winter - <u>Brassica napus</u>	10	50	230
Redtop - <u>Agrostis alba</u>	1	25	11,000
Rescue grass - <u>Bromus catharticus</u>	25	150	144

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	:purity	:weed seed	:gram
	:analysis:examination:		
	Grams	Grams	Number
Rhodes grass - <u>Chloris gayana</u>	1	25	4,724
Rice - <u>Oryza sativa</u>	100	500	66
Ricegrass, Indian - <u>Oryzopsis hymenoides</u>	10	50	308
Rough pea - <u>Lathyrus hirsutus</u>	100	500	39
Rye - <u>Secale cereale</u>	100	500	40
Ryegrass:			
Italian - <u>Lolium multiflorum</u>	5	50	500
Perennial - <u>Lolium perenne</u>	5	50	500
Sainfoin - <u>Onobrychis viciaefolia</u>	50	300	50
Sand dropseed - <u>Sporobolus cryptandrus</u>	1	25	11,927
Sesbania - <u>Sesbania exaltata</u>	25	150	105
Smilo - <u>Oryzopsis miliacea</u>	2	50	2,008
Sorghum:			
Grain - <u>Sorghum vulgare</u>	50	300	55
Sweet (sorgo) - <u>Sorghum vulgare</u>	50	300	50
Soybean - <u>Soja max</u>	500	500	6-13
Sudan grass - <u>Sorghum vulgare sudanense</u>	25	150	120
Sunflower (Cult.) - <u>Helianthus annuus</u>	100	500	
Sweet vernalgrass - <u>Anthoxanthum odoratum</u>	2	50	1,600
Switch grass - <u>Panicum virgatum</u>	5	50	814
Timothy - <u>Phleum pratense</u>	2	50	2,500
Trefoil, Big - <u>Lotus uliginosus</u>	2	50	1,944
Trefoil, Birdsfoot - <u>Lotus corniculatus</u>	2	50	814
Vasey grass - <u>Paspalum urvelli</u>	2	50	970
Velvetgrass - <u>Holcus lanatus</u>	1	25	3,359
Vetch:			
Common - <u>Vicia sativa</u>	100	500	19
Hairy - <u>Vicia villosa</u>	100	500	36
Hungarian - <u>Vicia pannonica</u>	100	500	24
Monantha - <u>Vicia monantha</u>	100	500	
Narrowleaf - <u>Vicia angustifolia</u>	50	300	60
Purple - <u>Vicia atropurpurea</u>	100	500	22
Woollypod - <u>Vicia dasycarpa</u>	100	500	25
Wheat: Common, spelt, emmer, durum -			
<u>Triticum</u> spp.	100	500	25
Wheatgrass:			
Crested, fairway - <u>Agropyron cristatum</u>	5	50	714
Crested, standard - <u>Agropyron cristatum</u>	10	50	425
Slender - <u>Agropyron trachycaulum</u>	10	50	340
Western (Bluestem) - <u>Agropyron smithii</u>	10	50	235
Wild-rye, Canada - <u>Elymus canadensis</u>	10	50	261

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	:for	:noxious-	:seeds per
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	:analysis:	examination:	
	Grams	Grams	Number
<u>Vegetables</u>			
Artichoke - <u>Cynara scolymus</u>	100	500	24
Asparagus - <u>Asparagus officinalis</u>	100	500	25
Beans:			
Asparagus - <u>Vigna sesquipedalis</u>	100	500	8
Garden - <u>Phaseolus vulgaris</u>	500	500	4
Horse or broad - <u>Vicia faba</u>	500	500	
Lima - <u>Phaseolus lunatus macrocarpus</u>	500	500	2
Runner - <u>Phaseolus coccineus</u>	500	500	1
Beet - <u>Beta vulgaris</u>	50	300	58
Broccoli - <u>Brassica oleracea</u>	10	50	315
Brussels sprouts - <u>Brassica oleracea</u>	10	50	315
Cabbage - <u>Brassica oleracea</u>	10	50	315
Carrot - <u>Daucus carota</u>	5	50	826
Cauliflower - <u>Brassica oleracea</u>	10	50	315
Celeriac - <u>Apium graveolens</u> var. <u>rapaceum</u>	1	25	2,521
Celery - <u>Apium graveolens</u>	1	25	2,521
Chicory - <u>Cichorium intybus</u>	5	50	940
Citron - <u>Citrullus vulgaris</u>	500	500	11
Collards - <u>Brassica oleracea</u>	10	50	315
Corn, sweet - <u>Zea mays</u>	500	500	
Cornsalad - <u>Fetticus</u> - <u>Valerianella</u>			
<u>locusta olitoria</u>	10	50	380
Cress:			
Garden - <u>Lepidium sativum</u>	5	50	424
Water - <u>Rorippa nasturtium aquaticum</u>	1	25	5,172
Cucumber - <u>Cucumis sativus</u>	100	500	38
Dandelion - <u>Taraxacum officinale</u>	2	50	1,240
Eggplant - <u>Solanum melongena</u>	10	50	228
Endive - <u>Cichorium endivia</u>	5	50	940
Kale - <u>Brassica oleracea</u>	10	50	315
Kohlrabi - <u>Brassica oleracea</u>	10	50	315
Leek - <u>Allium porrum</u>	10	50	396
Lettuce - <u>Lactuca sativa</u>	5	50	888
Muskmelon - <u>Cucumis melo</u>	100	500	45
Mustard:			
Black - <u>Brassica nigra</u>	5	50	1,256
India - <u>Brassica juncea</u>	5	50	624
Spinach - <u>Brassica rapa perviridis</u>	5	50	536
White - <u>Brassica hirta</u>	25	150	162

Table 1

Name of seed	Weights for working samples		
	:Minimum	:Minimum	:Approximate
	:weight	:weight for	:number of
	:for	:noxious-	:seeds per
	:purity	:weed seed	:gram
	:analysis:	examination:	
	Grams	Grams	Number
Okra - <u>Hibiscus esculentus</u>	100	500	19
Onion - <u>Allium cepa</u>	10	50	341
Pak-choi - <u>Brassica chinensis</u>	5	50	633
Parsley - <u>Petroselinum hortense</u>	5	50	648
Parsnip - <u>Pastinaca sativa</u>	10	50	429
Peas, garden - <u>Pisum sativum</u>	500	500	3
Pepper - <u>Capsicum</u> spp.	25	150	167
Pet-tsai (Chinese cabbage) - <u>Brassica pekinensis</u>	5	50	633
Pumpkin - <u>Cucurbita pepo</u>	500	500	4
Radish - <u>Raphanus sativus</u>	50	300	75
Rhubarb - <u>Rheum rhaponticum</u>	50	300	60
Rutabaga - <u>Brassica napobrassica</u>	10	50	428
Salsify - <u>Tragopogon porrifolius</u>	50	300	66
Sorrel - <u>Rumex acetosa</u>	2	50	1,079
Soybean, vegetable - <u>Soja max</u>	500	500	6-13
Spinach:			
Common - <u>Spinacia oleracea</u>	25	150	100
New Zealand - <u>Tetragonia expansa</u>	100	500	13
Squash - <u>Cucurbita</u> sp.	500	500	14
Swiss chard - <u>Beta vulgaris</u>	50	300	58
Tomato:			
Common - <u>Lycopersicon esculentum</u>	5	50	405
Husk - <u>Physalis pubescens</u>	2	50	1,240
Turnip - <u>Brassica rapa</u>	10	50	536
Watermelon - <u>Citrullis vulgaris</u>	500	500	11

- 1/ Pure seed unit consists of spikelet or floret with at least one caryopsis or naked caryopsis.
- 2/ Pure seed unit consists of spike, spikelet, floret or caryopsis.
- 3/ Pure seed unit consists of bur, floret or caryopsis.

201.47 Delete the word "counted" in next to the last sentence of the section and insert in lieu thereof the word "taken."

201.48 Change to read: "Kind, variety, or type considered pure seed.—The pure seed shall include all seeds of each kind, variety, or type under consideration present in excess of 5 percent of the whole, whether shriveled, cracked, or otherwise injured, and pieces of seeds that are larger than one-half of the original size, whether broken, insect-damaged, or diseased."

201.49 Change to read: "Other crop seed.—Seeds of plants grown as crops (other than the kind, variety, or type included in the pure seed) each kind, variety, or type of which is present in a proportion to the whole of 5 percent or less, whether shriveled, cracked, or otherwise injured, and pieces of seeds larger than one-half of the original size, whether broken, insect-damaged, or diseased, shall be considered other crop seeds unless recognized as weed seeds."

201.50 Change to read as follows: "Weed seed.—Seeds, bulblets or tubers of plants recognized as weeds by laws or official regulations or by general usage shall be considered weed seeds: Provided that undeveloped or badly injured weed seeds, including noxious-weed seeds, as described under inert matter shall be considered inert matter and not weed seed. When seeds of Juncus spp. are present and would not add more than 0.1 percent to the percentage of weed seed, they need not be separated but may be included with the inert matter."

201.51 Change to read as follows: "Inert matter.—"Inert matter... shall include seedlike structures from both crop and weed plants and other matter not seeds as follows:

(a) Seedlike structures from crop plants.—Pieces of seeds one-half the original size or less, whether broken, insect-damaged, or diseased; seeds of legumes and crucifers with the seed coats entirely removed; empty glumes and sterile florets of grasses; attached sterile florets of grasses (which must be removed from the fertile florets except in bluegrasses, Rhodes grass, bluestems and grammas).

(b) Seedlike structures from weed plants.—All badly injured, undeveloped or empty structures which resemble seeds but which by visual examination (including dissection or the use of reflected light) can be easily demonstrated as having no embryo or having only a rudimentary embryo or having an embryo that has been destroyed by a disease organism. Included as inert matter are structures from weed plants as follows:

- (1) Seeds of grasses with over half the embryo removed;
- (2) 'Seeds' of dodder which are usually fragile, ashen grey to brown in color and somewhat enlarged;
- (3) Ragweed seed with both the involucre and pericarp absent;
- (4) Shriveled, blackened seeds of buckhorn;
- (5) Empty seeds or fruits such as occur in the sedge, buckwheat, morning-glory, and sunflower families;
- (6) Empty glumes and sterile florets of grasses;
- (7) Seeds of legumes and species of Brassica with the seed coats entirely removed;

(8) Bulblets of wild onion and garlic with the basal or stem end portion removed; and

(9) Seeds of Juncus spp. when not in excess of 0.1 percent.

(c) Other matter.—Soil, sand, stones, chaff, stems, leaves, nematode galls, and fungus bodies (such as ergot and other sclerotia and smut balls)."

201.52 Change to read as follows: "Noxious-weed seeds.—The determination of the number of seeds, bulblets, or tubers of individual noxious weeds present per unit weight should be made on at least the minimum quantities listed in table 1 except that if 30 or more noxious-weed seeds, bulblets, or tubers of one species are found in the pure seed analysis or noxious-weed seed examination of a like amount the rate of occurrence of that species shall be based on the pure seed analysis and the occurrence of that species in the remainder of the bulk examined for noxious-weed seeds need not be noted."

201.53 Change to read: "Source of seed for germination.—

(a) When both purity and germination tests are required, seeds for germination shall be taken from the separation of the kind, variety, or type considered pure seed and shall be counted without discrimination as to size or appearance.

(b) When only a germination test is required and the pure seed is estimated or determined to be at least 98 percent, the pure seed for the germination test may be taken indiscriminately from a representative portion of the bulk.

(c) When only a germination test is required and the pure seed is found to be less than 98 percent, the pure seed shall be taken indiscriminately from a pure seed separation made according to the provisions of these rules and regulations which govern the separation of the kind, variety, or type considered pure seed except that other crop seeds, inert matter, and weed seeds need not be separated."

201.57 Add the following: "If at the end of the germination period provided for legumes, okra, and asparagus in these rules and regulations there are still present swollen seeds or seeds of these kinds which have just started to germinate, all seeds or seedlings except the above-stated shall be removed and the test continued for 5 additional days and the normal seedlings included in the percentage of germination."

201.58 Changes and additions (underscored) "Methods of testing for germination and hard seed."

Table 2.- Methods for laboratory germination and hard seed

Name of seed	: Sub- : : strata: : : 1/ : 2/ :	Tempera- ture 2/	: : : First: : : count: :	: : : Final: : : count: :	Remarks
		°C.	Days	Days	
Bean, field - Phaseolus vulgaris	R,S	20-30	5	8 3/	Watch for "baldhead." Open the cotyledons if plumule is not visible
Bluegrass: Bulbous - Poa Bulbosa	P,S	10	10	35	Prechill 1 week at 5° C. KNO <sub>3</sub> or soil. 4/ 5/
Nevada - Poa nevadensis	P	20-30	7	21	Light, KNO <sub>3</sub> 4/
Texas - Poa arachnifera	P	20-30	7	28	Light, KNO <sub>3</sub> . Fresh seed Prechill at 5°C. for 2 weeks. 4/ 5/
Bluestem: Big - Andropogon furcatus	P,TS	20-30	7	28	Light, KNO <sub>3</sub> . Fresh seed prechill at 5° C. for 2 week 4/ 5/
Little - Andropogon scoparius	P,TS	20-30	7	28	Light, KNO <sub>3</sub> . Fresh seed prechill at 5° C. for 2 weeks 4/ 5/
Sand - Andropogon hallii	P,TS	20-30	7	28	Light, KNO <sub>3</sub> . Fresh seed prechill at 5°C. for 2 weeks 4/ 5/
Brome, mountain - Bromus marginatus	P	20-30	6	14	Light
Buffalo grass - Buchloe dactyloides (Burs)	P,TB,TS	20-35	7	42	Light, KNO <sub>3</sub> . Fresh seed prechill at 5°C. for 6 weeks and germinate 14 additional day
(Caryopses)	P	20-35	5	14	Light, KNO <sub>3</sub> . 4/ 4/

Table 2.- Methods for laboratory germination and hard seed - Continued

Name of seed	: Sub- : : strata: : : 1/ : ture 2' :	Tempera- : : : : :	First: : : count: : : count: :	Final: : : : : :	Remarks
		°C.	Days	Days	
Carpet grass - Axonopus compressus	P	20-35	10	21	Light, fresh seed KNO <sub>3</sub> 4/
Clovers:					
Trifolium procubens	B	20	4	14 3/	
Lappa Trifolium lappaceum	B	20	3	7 3/	
Cotton - Gossypium spp.	T,S	20-30	4	12	"Prewet" seed for retest 6/
Crotalaria - Crotalaria intermedia, C. juncea, C. lanceolata, C. spectabilis, and C. striata	B,S	20-30	3	10	
Dropseed, sand - Sporobolus cryptandrus	P	15-35	5	42	Light, KNO <sub>3</sub> . Dormant samples prechill at 5° C. for 4 to 8 weeks and germinate for 28 days 4/ 5/
Fescue:					
Other fescues	P	15-25	7	21	Alternate method - 20°-30°C. Light 28 days
Flax - Linum usitatissimum	B,S	20-30	3	7	
Giant panic grass - Panicum antidotale	P,TS	20-30	7	28	Light
Gramma:					
Blue - Bouteloua gracilis	P,TB	20-30	7	28	Light, fresh seed KNO <sub>3</sub> 4/
Side-oats - Bouteloua curtipendula	P	15-30	7	28	Light, KNO <sub>3</sub> 4/
Harding grass - Phalaris tuberosa var. stenoptera	P	10-20	7	28	Light, fresh seed KNO <sub>3</sub> 4/

Table 2.- Methods for laboratory germination and hard seed - Continued

Name of seed	: Sub- : strata: : 1/	: : : Tempera- : ture 2/	: : : First: : count:	: : : Final: : count:	Remarks
		°C.	Days	Days	
<u>Indian grass</u> - <u>Sorghastrum nutans</u>	P, TS	20-30	7	21	Light, <u>KNO<sub>3</sub></u> . Fresh seed prechill at 5°C. for 2 weeks <u>4/ 5/</u>
<u>Johnson grass</u> - <u>Sorghum halepense</u>	P	20-35	7	35	Light, fresh seed <u>KNO<sub>3</sub> 4/</u>
<u>Lespedeza:</u> <u>Siberian</u> - <u>Lespedeza</u> <u>hedysaroides</u>	B, S	20-35	7	21 <u>3/</u>	
<u>Lovegrass, weeping</u> - <u>Eragrostis curvula</u>	P	20-35	5	14	Light, fresh seed <u>KNO<sub>3</sub> 4/</u>
<u>Lupine:</u> Blue - <u>Lapinus</u> <u>angustifolius</u>	R	20	4	10 <u>3/</u>	
Oats - <u>Avena spp.</u>	T, S	20	4	10	Fresh seed prechill for 5 days at 5° or 10° C. <u>Extend final count from</u> <u>10 to 12 days</u>
<u>Peanut</u> - <u>Arachis</u> <u>hypogea</u>	R, S	20-30	5	10	Remove shells
<u>Rescue grass</u> - <u>Bromus catharticus</u>	P	20-30	7	35	Light. Fresh seed; <u>KNO<sub>3</sub></u> and 15°-30°C., after 1 week move to 5°C. for completion of test <u>4/</u>
<u>Ricegrass, Indian</u> - <u>Oryzopsis hymenoides</u>	P	15	7	42	Light. Dormant seed prechill at 3° C. for 4 weeks and <u>germinate for 21 additional</u> <u>days</u>
<u>Rough Pea</u> - <u>Lathyrus hirsutus</u>	T	20	7	14 <u>3/</u>	

Table 2.- Methods for laboratory germination and hard seed - Continued

Name of seed	Sub- strata: 1/	Tempera- ture 2/	First: count	Final: count	Remarks
	°C.	Days	Days		
<b>Ryegrass:</b>					
Italian - <i>Lolium multiflorum</i>	P, TB	20-30	5	14	Light; <u>for fluorescence test the seed should be grown on filter paper.</u> Fresh seed KNO <sub>3</sub> <u>4/</u>
Perennial - <i>Lolium perenne</i>	P, TB	20-30	5	14	<u>Light; for fluorescence test the seed should be grown on filter paper</u>
<u>Sesbania - Sesbania exaltata</u>	<u>B</u>	<u>20-30</u>	<u>5</u>	<u>7</u>	
<u>Smilo - Oryzopsis miliacea</u>	<u>P</u>	<u>20-30</u>	<u>7</u>	<u>42</u>	<u>Light. Fresh seed prechill at 5° C. for 2 weeks 5/</u>
<b>Switch grass -</b>					
<i>Panicum virgatum</i>	P, TS	15-30	7	28	Light, KNO <sub>3</sub> . Fresh seed <u>prechill at 5° C. for 2 weeks 4/ 5/</u>
<b>Trefoil:</b>					
<i>Big - Lotus uliginosus</i>	B	20	3	<u>7 3/</u>	
<i>Birdsfoot - L. corniculatus</i>	B	20	3	<u>7 3/</u>	
<b>Vasey grass -</b>					
<i>Paspalum urvillei</i>	P	20-35	7	21	Light; fresh seed KNO <sub>3</sub> <u>4/</u>
<b>Wheatgrass:</b>					
Crested - <i>Agropyron cristatum</i>	P, TB	20-30	5	14	Light; <u>fresh seed - KNO<sub>3</sub> and 5° or 10° C. for 7 days 4/ 5/</u>
Western (Bluestem) <i>Agropyron smithii</i>	P	20-30	7	35	Light; fresh seed - KNO <sub>3</sub> <u>or soil and 15°-30° C 4/</u>
<u>Wild-rye, Canada - Elymus canadensis</u>	<u>P</u>	<u>15-30</u>	<u>7</u>	<u>21</u>	<u>Light; fresh seed prechill at 5° C. for 2 weeks 5/</u>

Table 2.- Methods for laboratory germination and hard seed - Continued

Name of seed	: Sub- : : : :				: First: Final:		Remarks
	: strata:	Tempera-	ture	2/	: count:	: count:	
		°C.	Days	Days			
VEGETABLES							
Beans:							
<u>Asparagus</u> - <u>Vigna</u> <u>sesquipedalis</u>	R,S	20-30	5	8	<u>Watch for weevil injury to plumule</u>		
Garden - <u>Phaseolus</u> <u>vulgaris</u>	R,S	20-30	5	8 3/	<u>Watch for "baldhead."</u> <u>open the cotyledons if plumule is not visible</u>		
Lima - <u>Phaseolus</u> <u>lunatus</u>	R,S	20-30	5	9 3/	<u>Watch for "baldhead."</u> <u>open the cotyledons if plumule is not visible</u>		
<u>Runner</u> - <u>Phaseolus</u> <u>coccineus</u>	R,S	20-30	5	9 3/			
Broccoli - <u>Brassica</u> <u>oleracea</u>	B,P	20-30	3	10	<u>Dormant samples light, KNO<sub>3</sub> prechill at 5°-10°C. for 3 days 4/ 5/</u>		
Brussels sprouts - <u>Brassica</u> <u>oleracea</u>	B,P	20-30	3	10	<u>Do.</u>		
Cabbage - <u>Brassica oleracea</u>	B,P	20-30	3	10	<u>Do.</u>		
<u>Cardoon</u> - <u>Cynara cardunculus</u>	T	20-30	7	21			
Cauliflower - <u>Brassica</u> <u>oleracea</u>	B,P	20-30	3	10	<u>Dormant samples light, KNO<sub>3</sub> prechill at 5°-10°C. for 3 days 4/ 5/</u>		
Celery:							
<u>Apium graveolens</u>	P,TB	20-30	10	21	<u>Light</u>		
Collards - <u>Brassica</u> <u>oleracea</u>	B,P	20-30	3	10	<u>Dormant samples light KNO<sub>3</sub> prechill at 5°-10°C. for 3 days 4/ 5/</u>		

Table 2.- Methods for laboratory germination and hard seed - Continued

Name of seed	Sub- strata	Temperature °C.	First count	Final count	Days	Days	Remarks
Dandelion - Taraxacum officinale	P, TB	20-30	7	21	Light		
Endive - Cichorium endivia	P, TS	20-30	5	14	Light, KNO <sub>3</sub> or soil.		Dormant samples - add about 1/8" of tap water at time of preliminary count <u>4/</u>
Kale - Brassica oleracea	B, P	20-30	3	10	Dormant samples light, KNO <sub>3</sub> prechill at 3°-5°C. for 3 days <u>4/ 5/</u>		
Kohlrabi - Brassica oleracea	B, P	20-30	3	10	Do.		
Lettuce - Lactuca sativa	P	20	3	7	Light for at least 1/2 hour. Fresh seed prechill at 10° or 15°C. 3 days. Watch for sprouts with both spotted cotyledons and stubby radicles <u>5/</u>		
Onion - Allium cepa	B, S	20	6	<u>10</u>			
Soybean - Soja max	RT, S	20-30	5	<u>8</u>			
Spinach: Common - Spinacia oleracea	TB	10	7	21	Not too wet		

1/ Substrata: B = between blotters; TB = top of blotters; T = paper toweling; R = rolled towels; S = soil or sand; TS = top of soil; P = petri dishes with 2 thicknesses of blotters or 1 thickness of absorbent cotton or 5 thicknesses of paper toweling or on top of sand or soil in closed petri dishes.

- 2/ Temperature: A single numeral indicates a constant temperature.  
Two numerals separated by a dash indicates an alternation of  
temperatures; the test is held at the first temperature for  
approximately 16 hours and at the second temperature for approximately  
8 hours per day.
- 3/ Hard seeds often present. If at the end of the germination period  
there are still present swollen seeds or seeds which have just started  
to germinate, all seeds or seedlings except the above-stated shall be  
removed and the test continued for 5 additional days and the normal  
seedlings included in the percentage of germination.
- 4/ When potassium nitrate solution is used to moisten the substratum,  
a 0.2 percent solution (2 gms. potassium nitrate in 1,000 cc. water)  
is used. If more moisture is needed to complete the tests water is  
added to the substratum.
- 5/ The prechilling period is not included in the germination period  
given in this table unless otherwise specified.
- 6/ "Prewet" method on cotton: shake seed in a closed container,  
thoroughly wetting the "fuzz" of the seed. Blot off all excess  
moisture and put in to germinate. If the "prewet" test is higher,  
report both it and the standard germination.

Note:

Footnotes are to be appropriately applied to the species and varieties of seeds now included in the Federal Seed Act and regulations but which are not given in these amendments.

201.60 Insert after the words "Bermuda grass" the following: "Guinea grass, molasses grass, and Vasey grass."

201.101 Add to the enumerated kinds of seed the following: "Horse or broad bean, lupine, and peanut."

201.107 Add to the list of plant families the following: "Aizoaceae, carpetweed"; "Anacardiaceae, sumac"; "Asclepiadaceae, milkweed"; "Campanulaceae, bluebell"; "Capparidaceae, caper"; "Crassulaceae, orpine"; "Cucurbitaceae, cucurbit"; "Hydrophyllaceae, waterleaf"; "Illecebraceae, knotweed"; "Iridaceae, Iris"; "Lobeliaceae, lobelia"; "Lythraceae, loosestrife"; "Nyctaginaceae, four o'clock"; "Oxalidaceae, wood sorrel"; "Phytolaccaceae, pokeweed"; "Polemoniaceae, phlox"; "Valerianaceae, cornsalad."

In the list of seeds considered weed seeds when occurring incidentally in importations of other agricultural or vegetable seeds delete "Dallis grass, Paspalum dilatatum Poir" and insert "Grass, Johnson, Sorghum halepense (L.) Pers."

